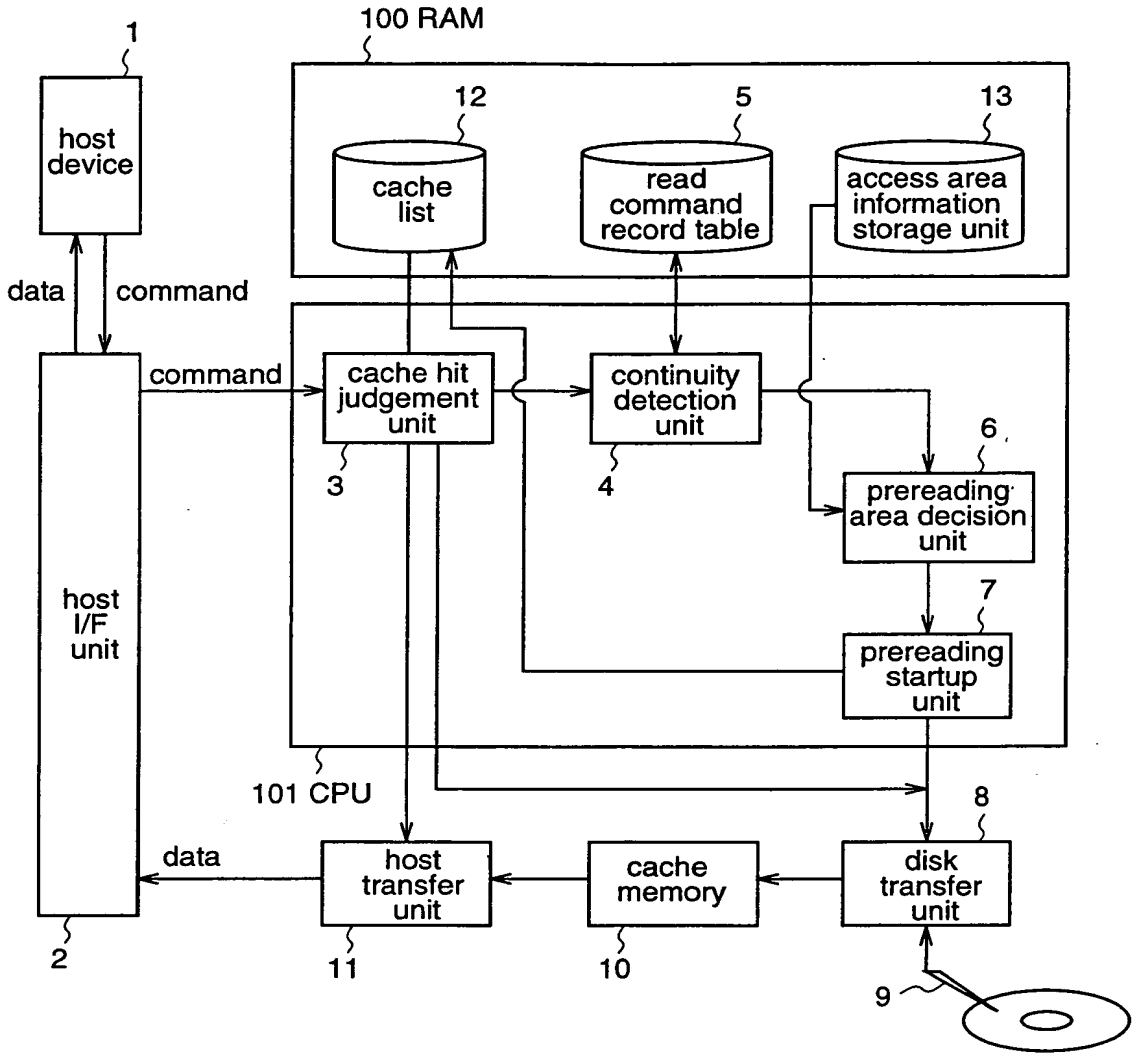
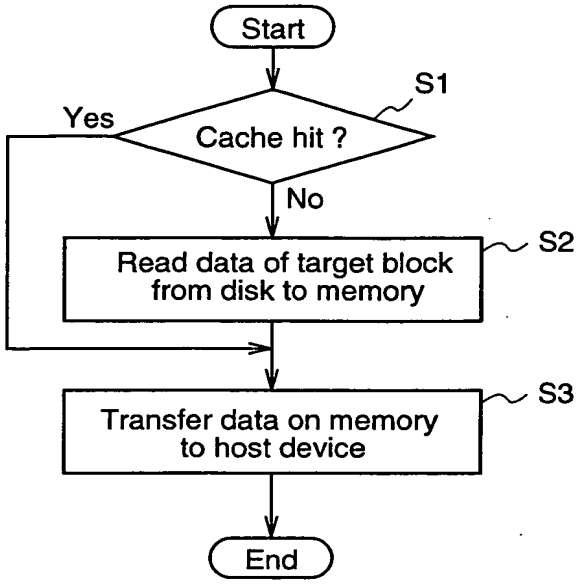
Fig.1



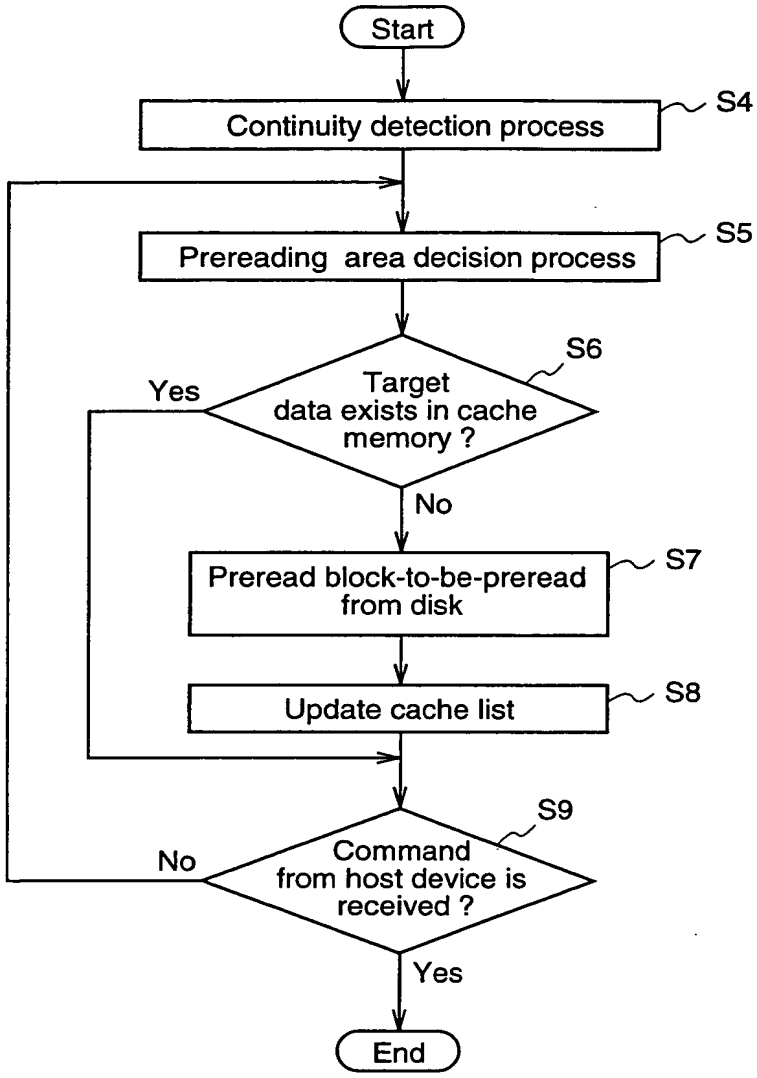
JP020030234A

Fig.2



09980311 - 011503

Fig.3



09980311 - 031505

Fig.4

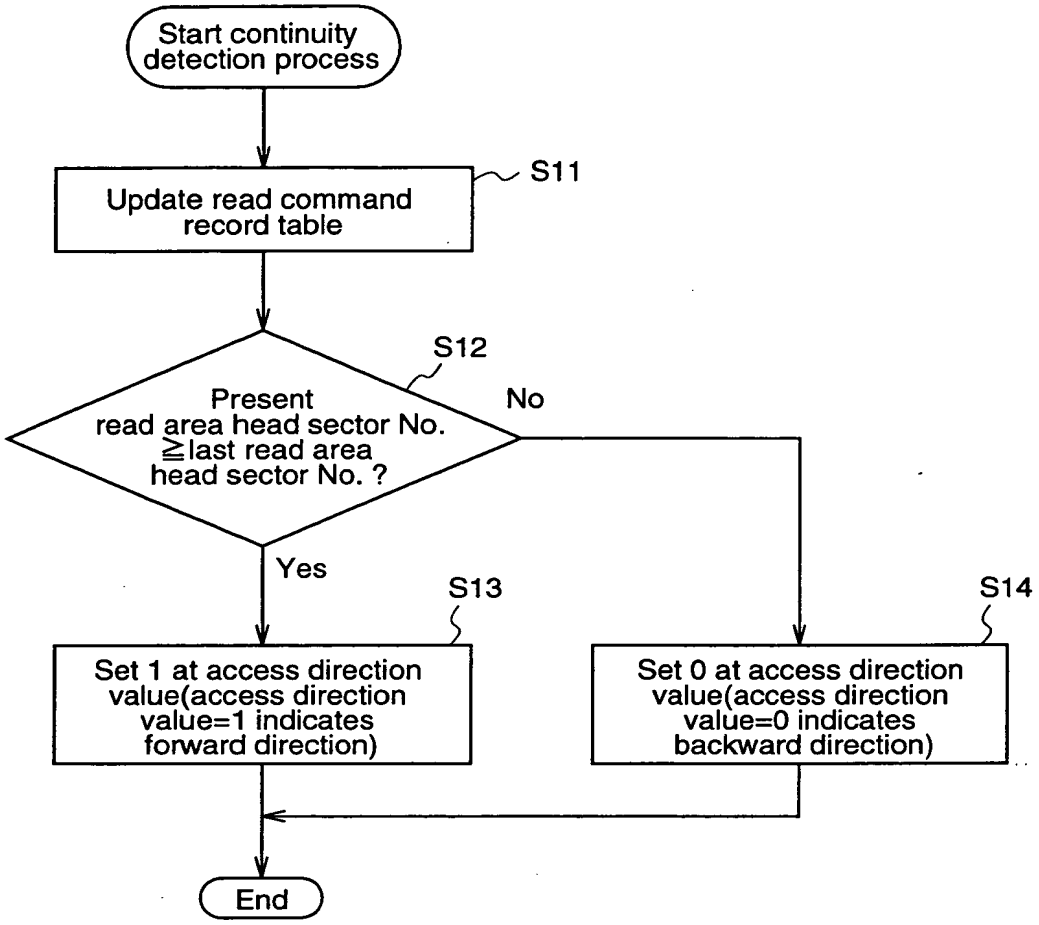


Fig.5

present read area head sector No.	G
present read area size	H
last read area head sector No.	A
last read area size	B
last-but-one read area head sector No.	C
last-but-one read area size	D
present access direction value	I
last access direction value	E

Fig.6

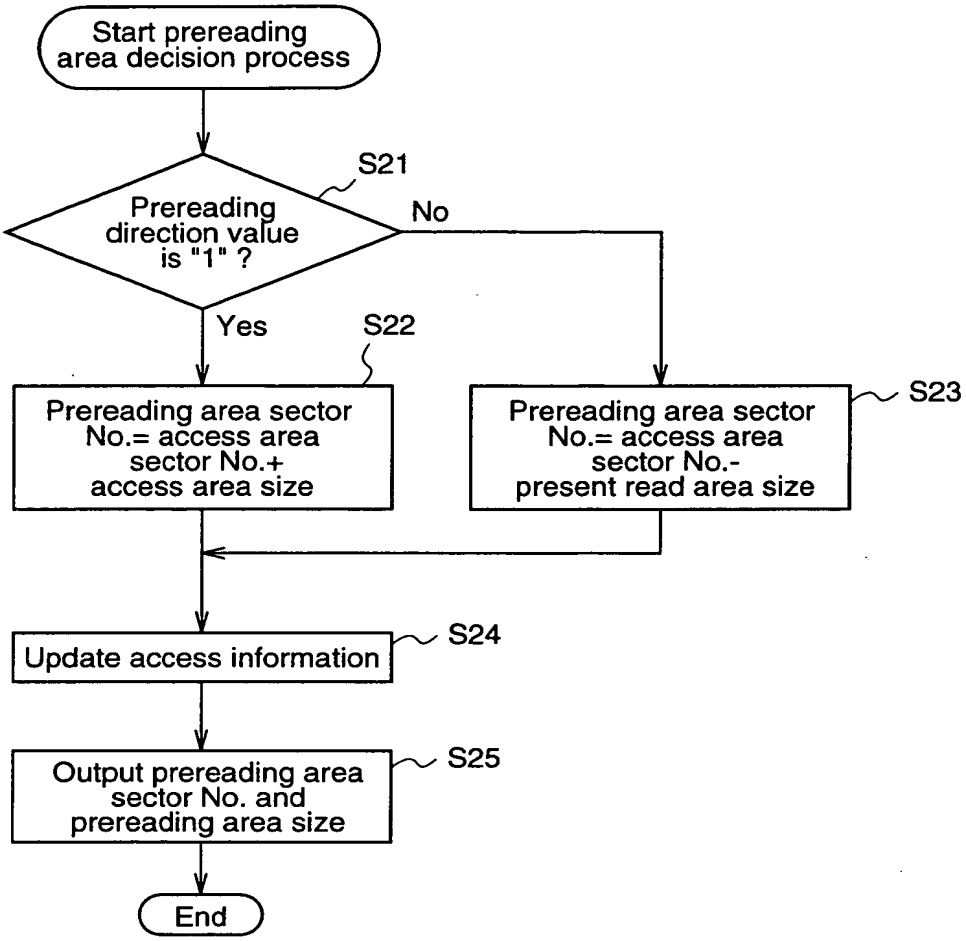


Fig.7

access area head sector No.	Q
access area size	R

Fig.8

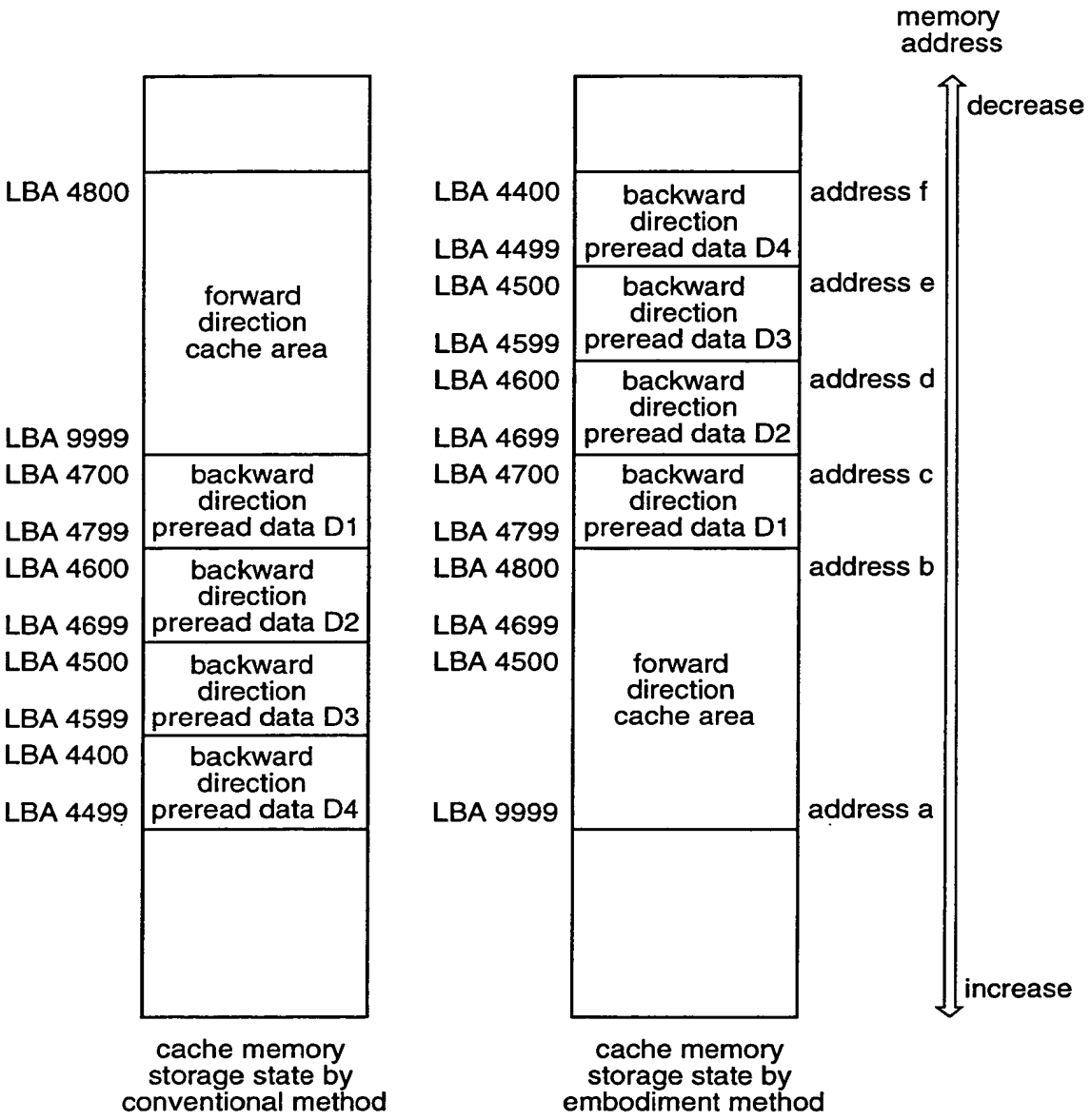
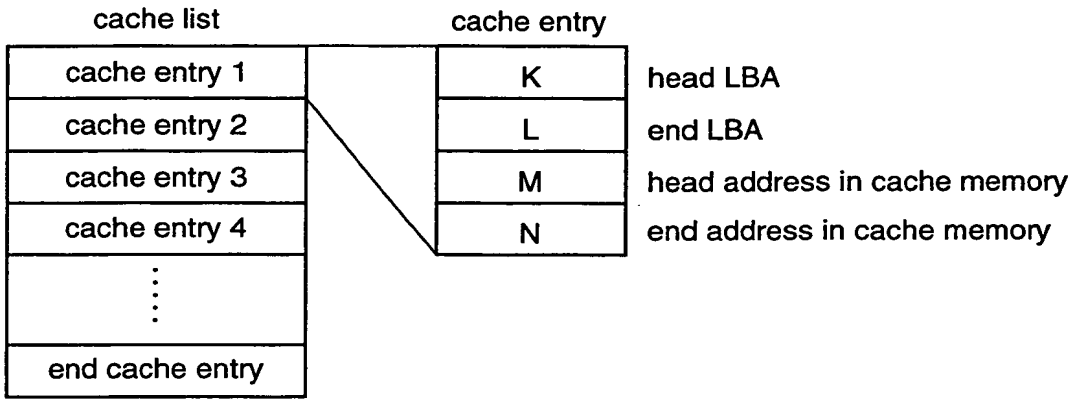
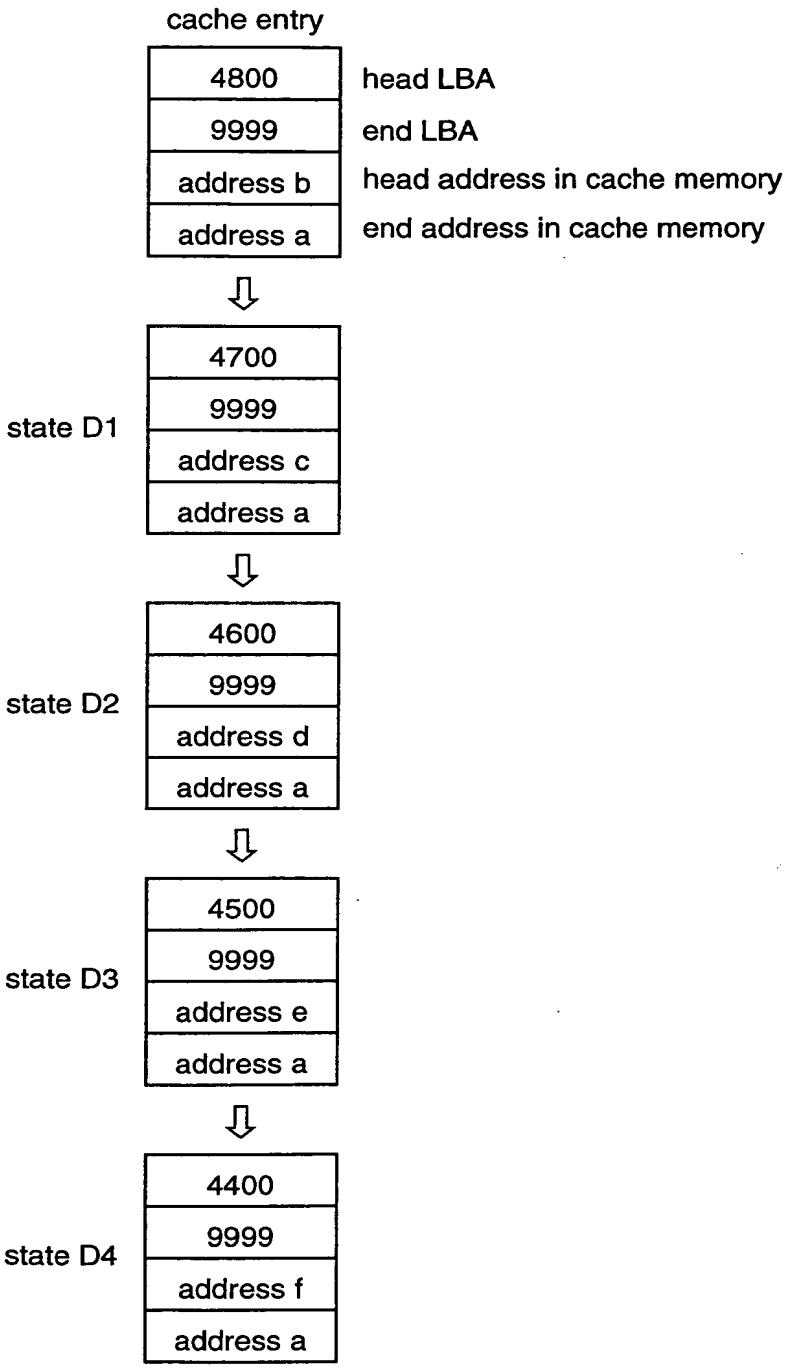

memory address
decrease
increase
LBA 4800
LBA 9999
forward direction cache area
LBA 4700
LBA 4799
backward direction preread data D1
LBA 4600
LBA 4699
backward direction preread data D2
LBA 4500
LBA 4599
backward direction preread data D3
LBA 4400
LBA 4499
backward direction preread data D4
cache memory storage state by conventional method
LBA 4400
LBA 4499
backward direction preread data D4
address f
LBA 4500
LBA 4599
backward direction preread data D3
address e
LBA 4600
LBA 4699
backward direction preread data D2
address d
LBA 4700
LBA 4799
backward direction preread data D1
address c
LBA 4800
LBA 4699
LBA 4500
forward direction cache area
address b
LBA 9999
address a
cache memory storage state by embodiment method

Fig.9



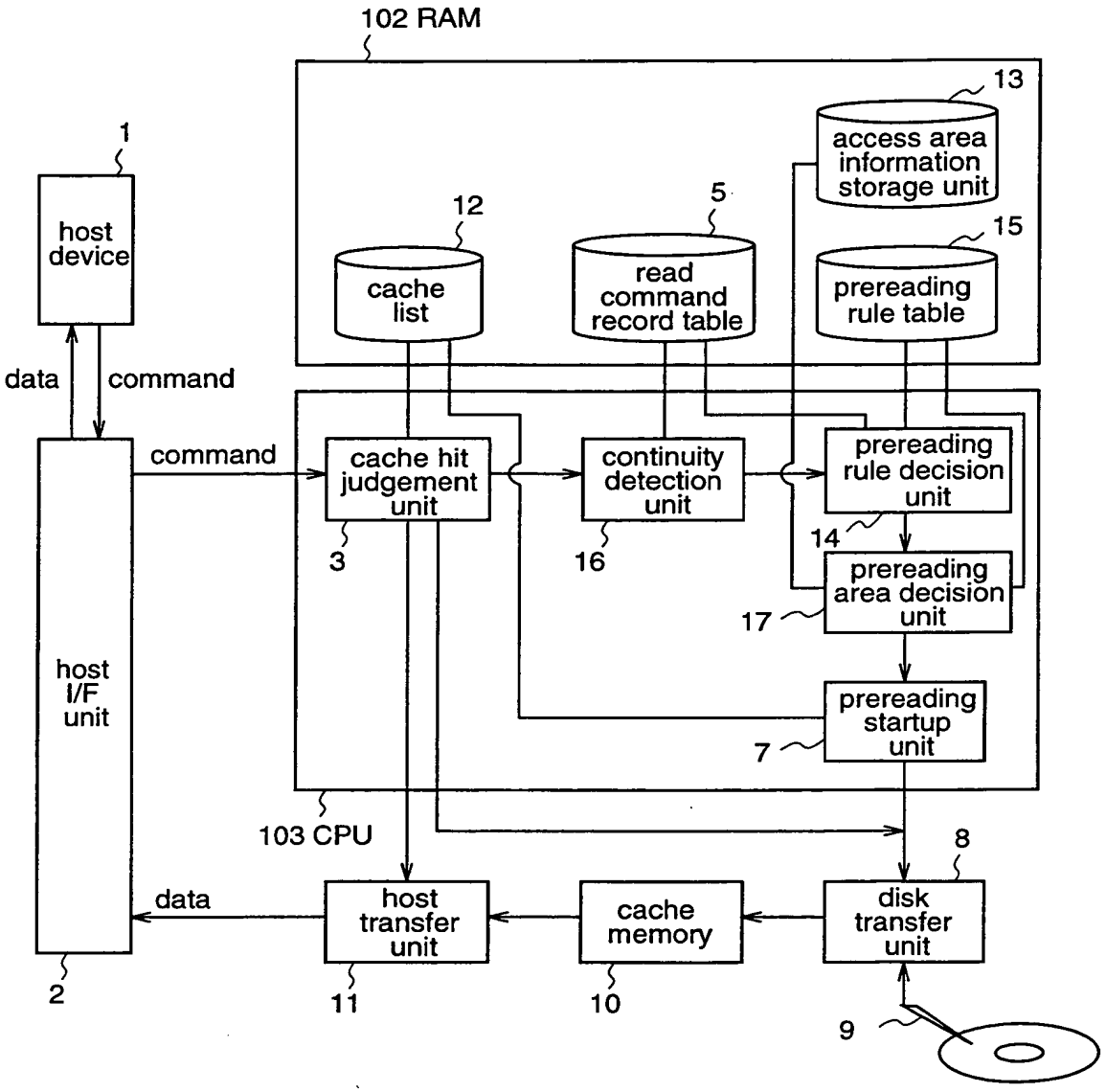
09980311 - 040203

Fig.10



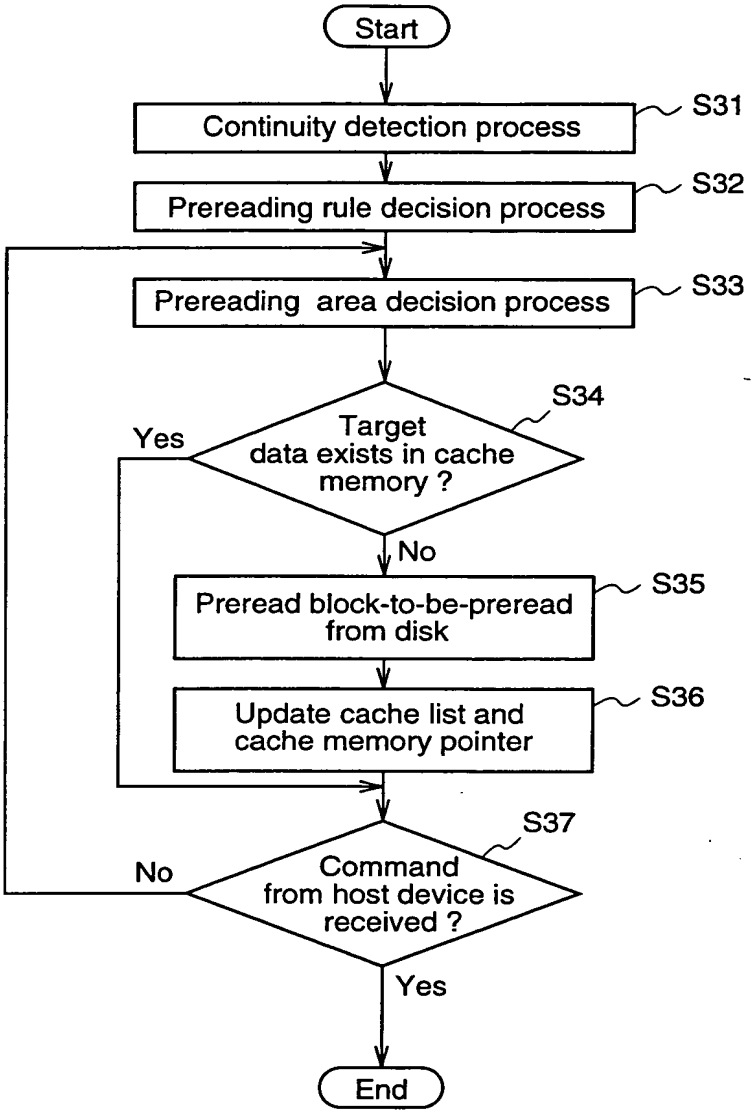
JP920000050US1

Fig.11



09980311 - 020904

Fig.12



JP2000-347809

Fig.13

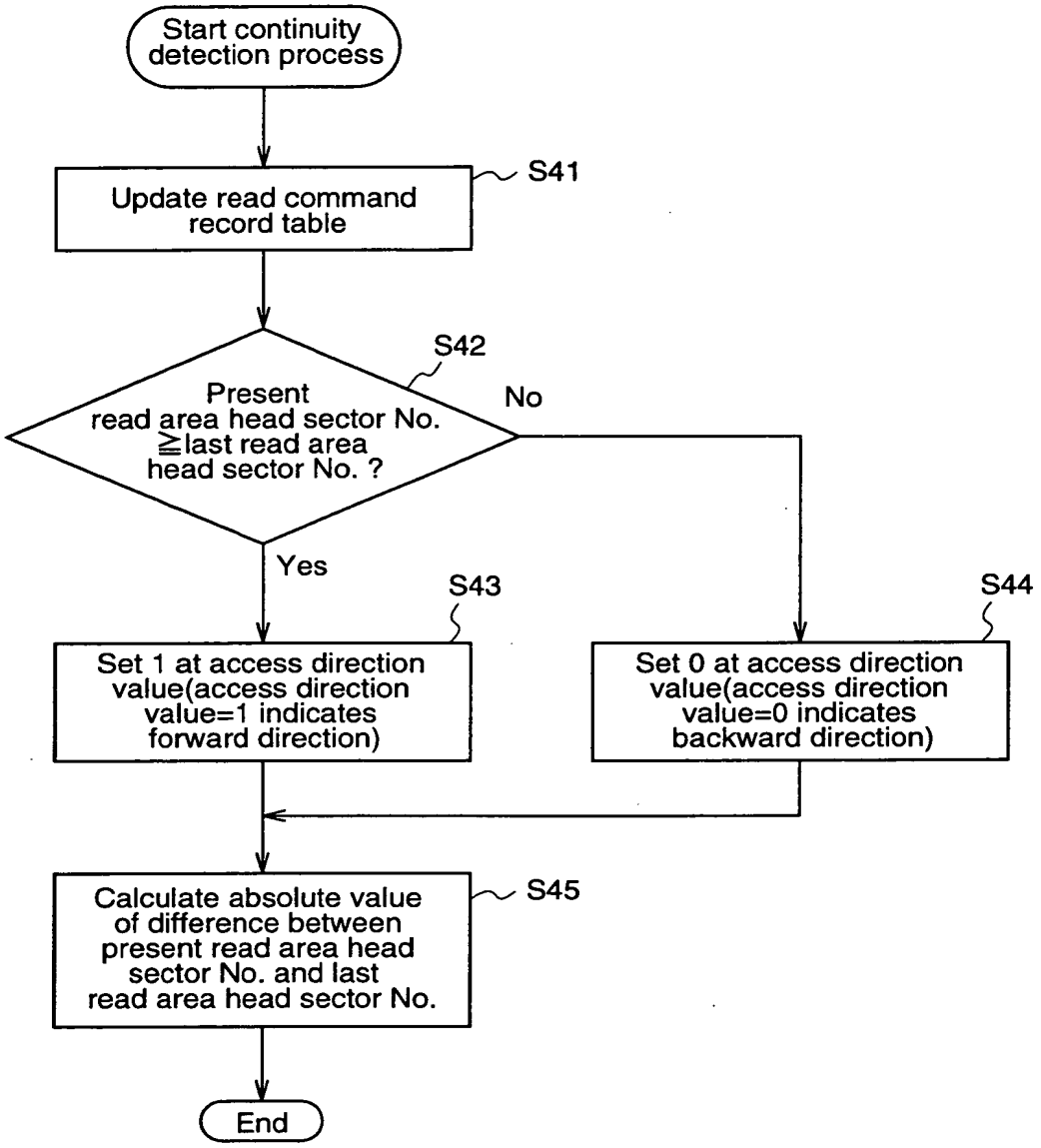
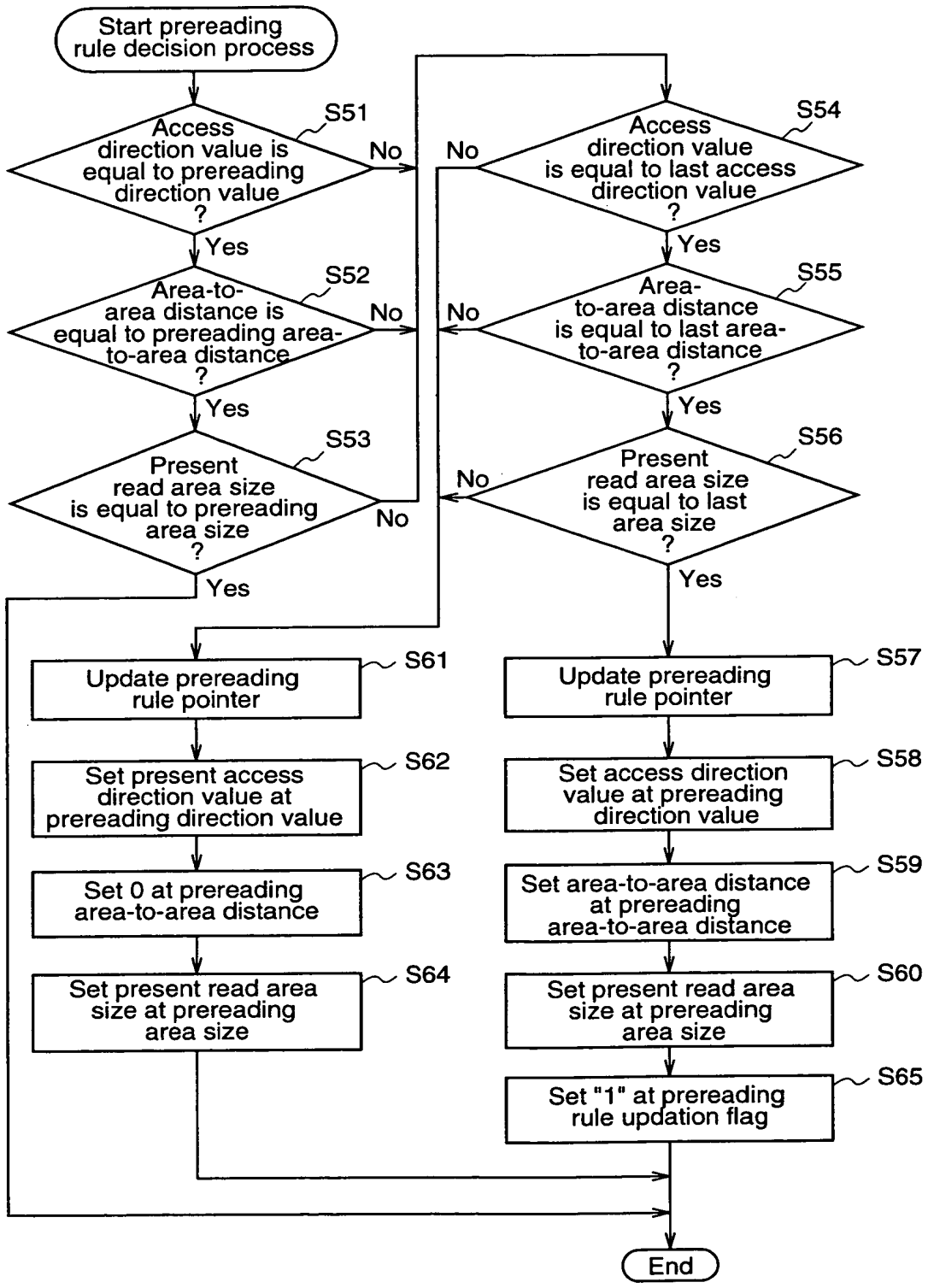

Start continuity detection process
Update read command record table
S41
Present read area head sector No. ≧last read area head sector No. ?
S42
No
Yes
S43
Set 1 at access direction value(access direction value=1 indicates forward direction)
S44
Set 0 at access direction value(access direction value=0 indicates backward direction)
Calculate absolute value of difference between present read area head sector No. and last read area head sector No.
S45
End

Fig.14

present read area head sector No.	G
present read area size	H
last read area head sector No.	A
last read area size	B
last-but-one read area head sector No.	C
last-but-one read area size	D
present access direction value	I
present area-to-area distance	J
last access direction value	E
last area-to-area distance	F

EP0809184A2

Fig.15



20020214.E3859

Fig.16

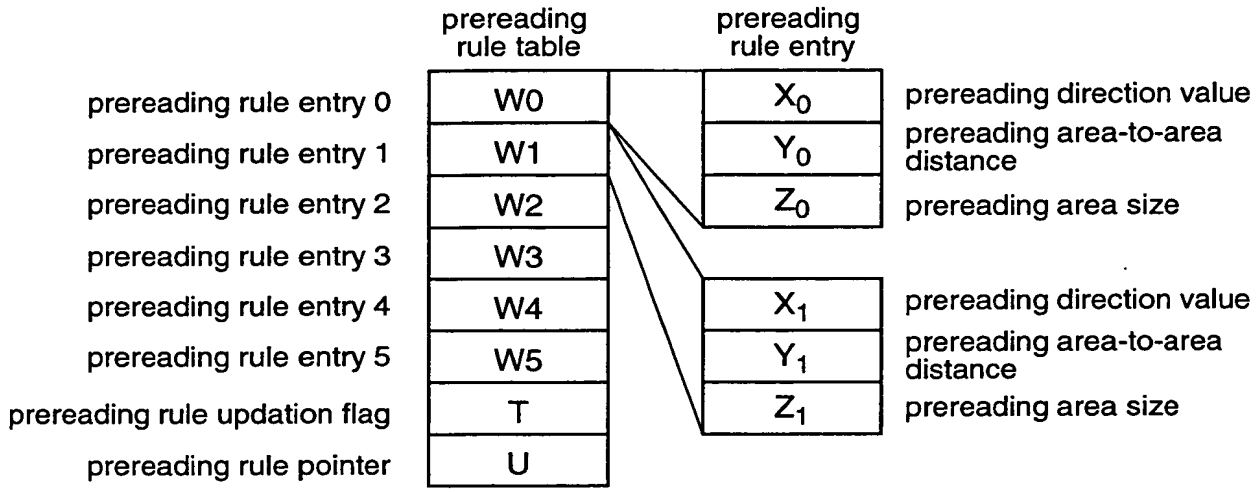

prereading rule table
prereading rule entry
prereading rule entry 0
prereading rule entry 1
prereading rule entry 2
prereading rule entry 3
prereading rule entry 4
prereading rule entry 5
prereading rule updation flag
prereading rule pointer
W0
W1
W2
W3
W4
W5
T
U
X_0
Y_0
Z_0
X_1
Y_1
Z_1
prereading direction value
prereading area-to-area distance
prereading area size
prereading direction value
prereading area-to-area distance
prereading area size

Fig.17

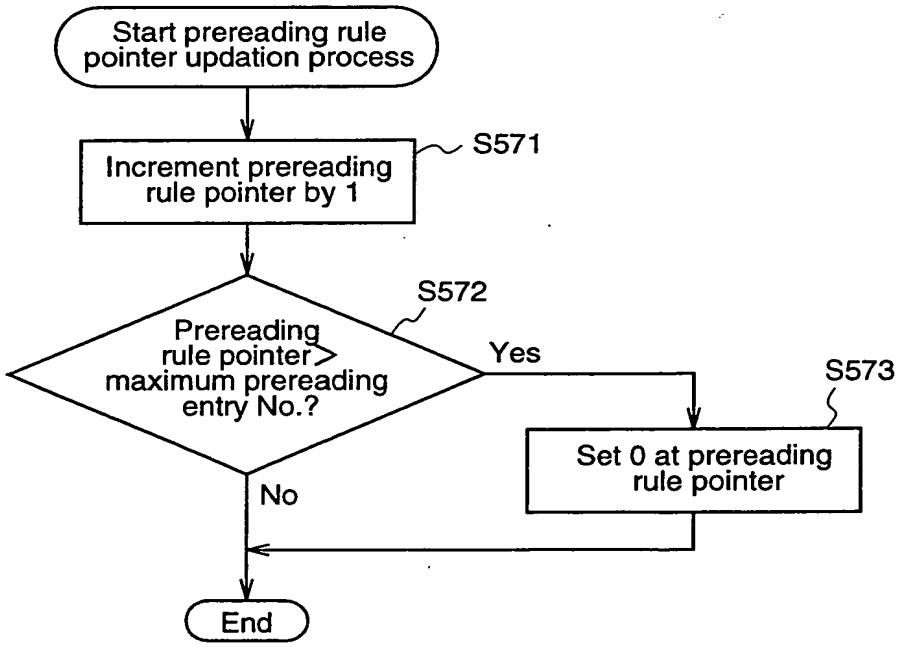

Start prereading rule pointer updation process
Increment prereading rule pointer by 1
S571
Prereading rule pointer > maximum prereading entry No.?
S572
Yes
No
Set 0 at prereading rule pointer
S573
End

Fig.18

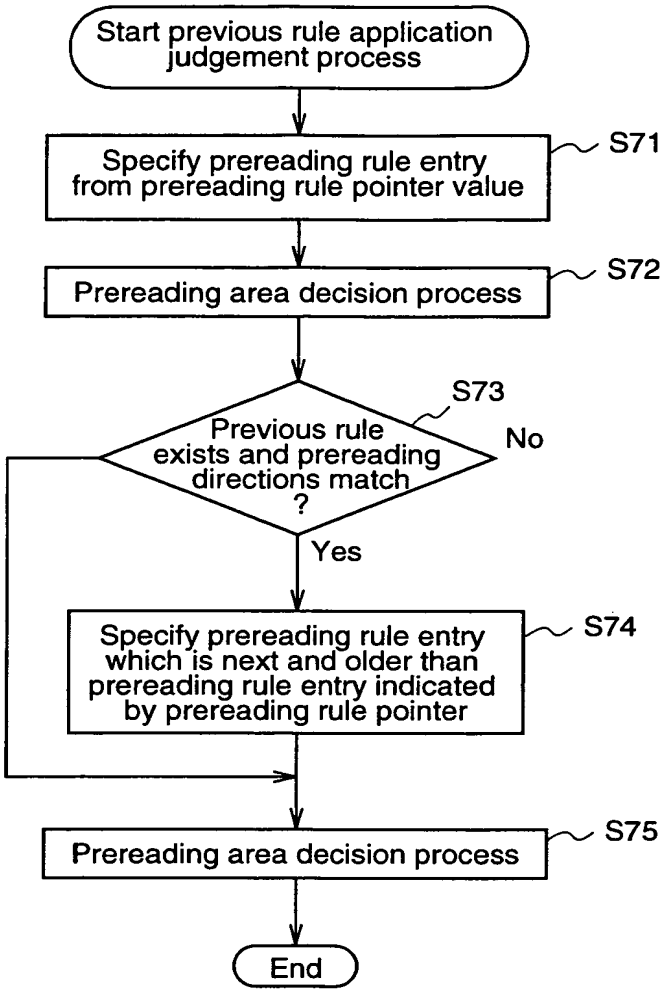


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Fig.19

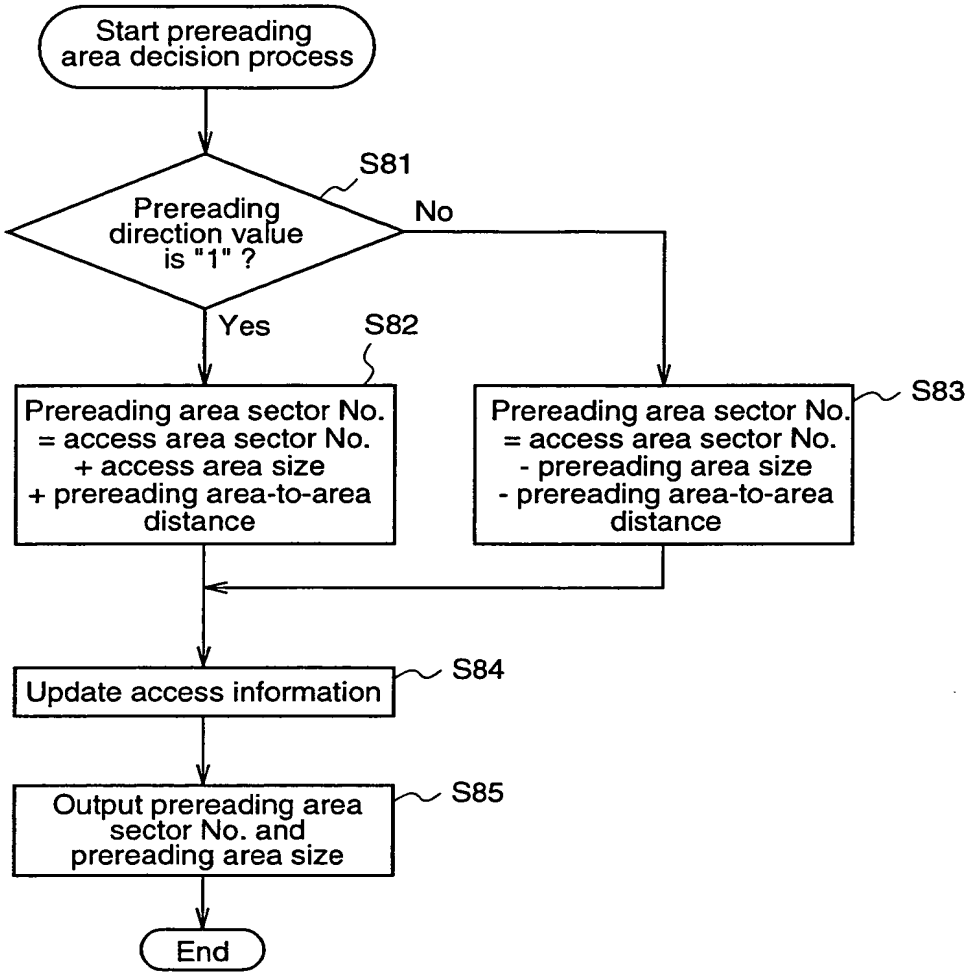

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Fig.20

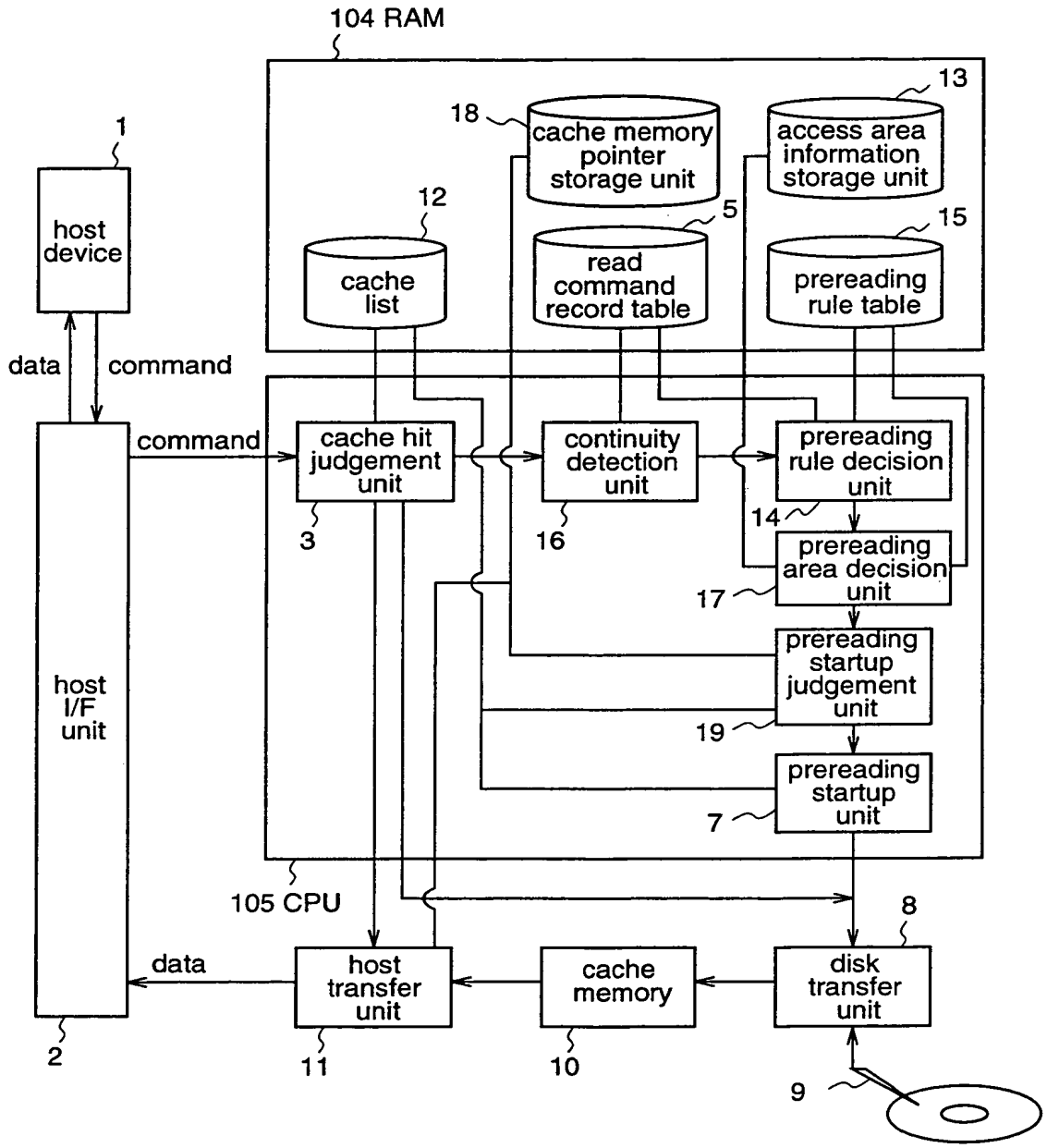

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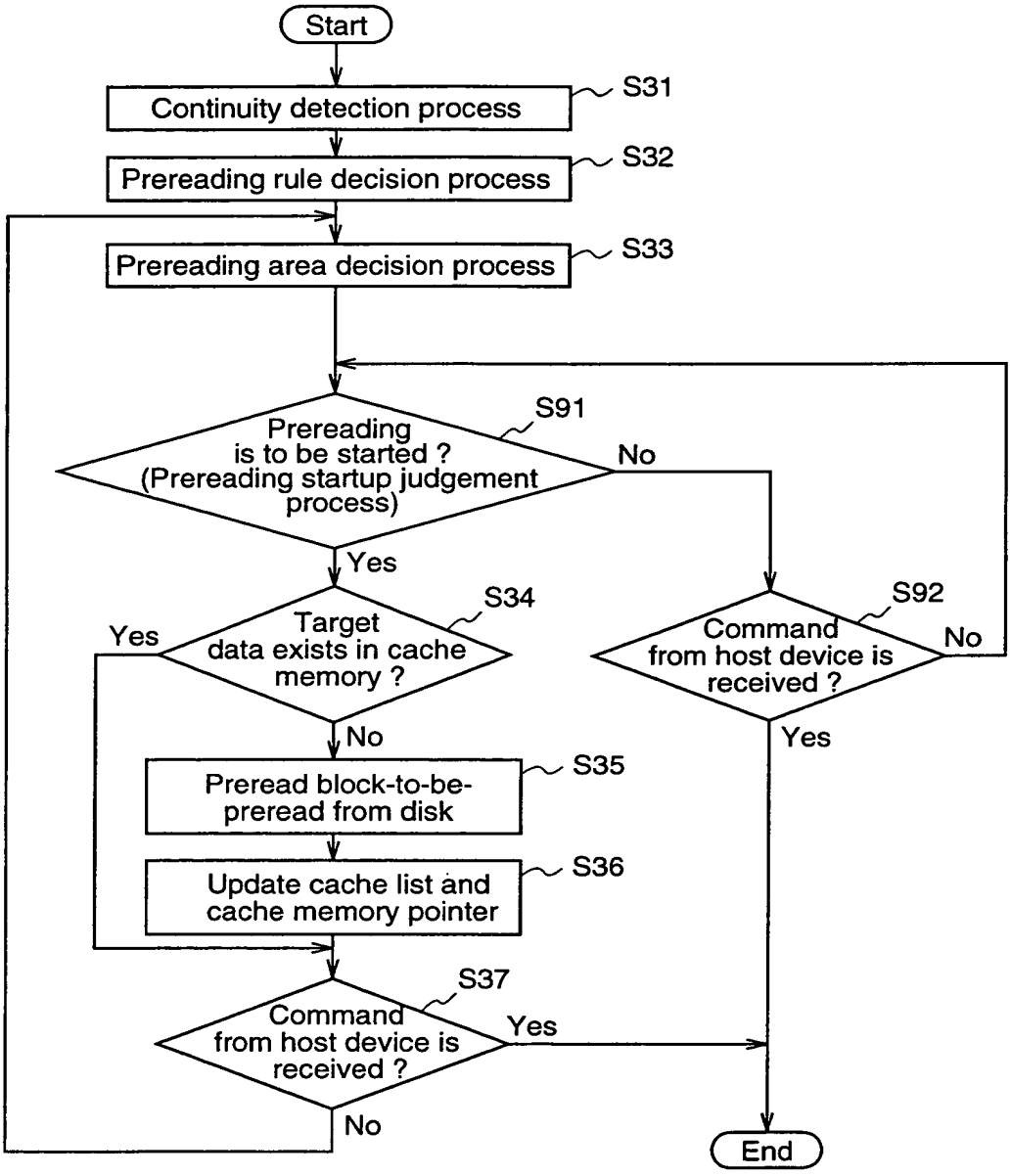
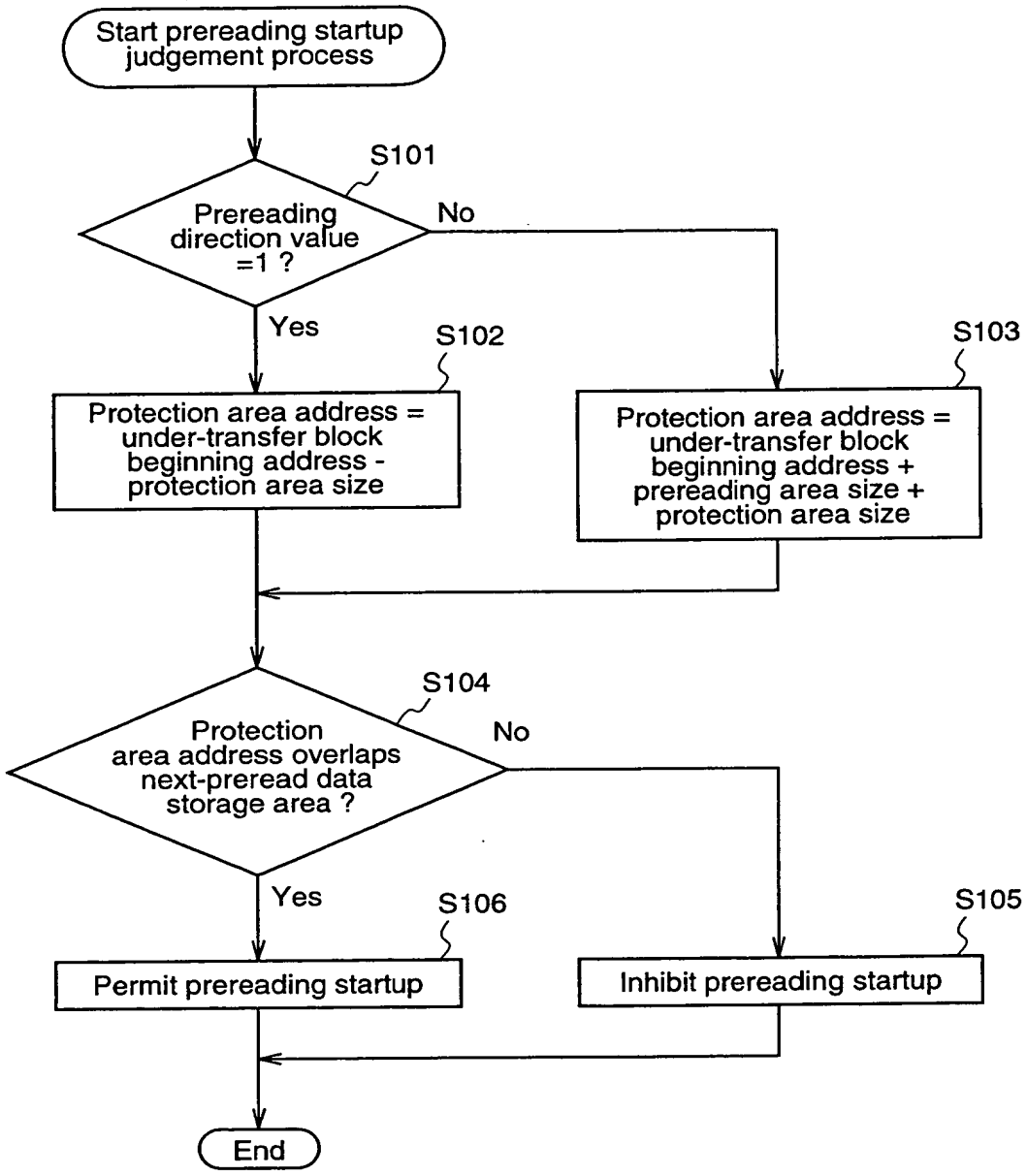
Fig.21



09980311 - 070902

Fig.22



09/980311 - 11/05/03

Fig.23

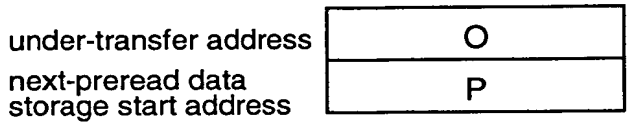
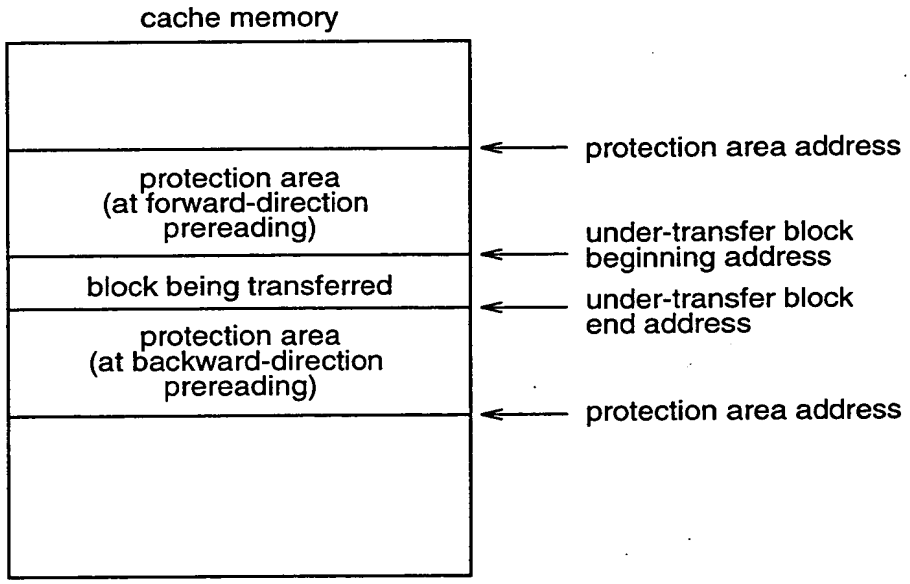


Fig.24



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